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THE COUNCIL OF CIVIL DEFENSE
MAIN CAPITOL BUILDING
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INFORMATION CIRCULAR NO. 20

IMMEDIATE RELEASE

KEY FACTS CONCERNING ATTACK WARNING SYSTEMS

1. The purpose of this circular is to provide county and local civil defense officials with a brief summary of some key facts concerning attack warning systems.

2. The United States Air Force, assisted by the Federal Civil Defense Administration, is responsible for the transmission of attack warning and all-clear signals from military control centers to key point centers strategically located throughout the Commonwealth.

3. The State Council of Civil Defense, in turn, "carries" the signals from the key points to the State's principal cities and towns. State Police radio and teletype facilities, plus "chain" telephone calls, are now used for the "fan out". However, to cut the alerting time from minutes to seconds, the Council has begun installation of a new bell-and-light instantaneous warning system. This statewide, automatic system eventually will take the signals to civil defense control centers and other essential locations in various towns and cities.

4. Once the alert and all-clear signals reach the main population centers, each individual city, borough and town must "sound public warnings" to its citizens. This is done by means of sirens, horns or whistles which make up the attack warning system. (Bells should not be used for "standard air raid alerts". They are the recognized signal for "announcing" gas attacks and should be reserved for possible use in that connection.)

5. The Federal Civil Defense Administration has ruled that only two types of public warning shall be sounded, namely, the "red alert" (expect attack at any moment) and the "all-clear" (the air is clear of hostile aircraft). The

specified signal for the red alert is either a "warbling" or "wailing" alarm of three-minutes' duration, or else a series of short blasts lasting for a total of three minutes. The all-clear consists of: A steady one-minute blast, followed by two minutes of silence; a second one-minute steady blast, followed by another two-minute silence; and, finally, a third steady blast one minute long.

6. Many small communities effectively can be alerted by means of an attack warning system consisting of a single siren, horn or whistle. Somewhat larger centers may require systems made up of several warning devices. Big towns and cities usually will require still greater numbers of devices located out-of-doors and sometimes added equipment placed inside large buildings and factories.

7. There are many different kinds and types of sirens, horns and whistles suitable for use as attack warning devices. They include air horns, air and steam whistles, electric, steam and gasoline driven sirens, and electronic loud speakers. Their "sound range" runs from one block, or less, up to distances of two miles. Their individual cost runs from 10 or 15 dollars to as much as seven or eight thousand dollars.

8. All attack warning devices may be divided, broadly speaking, into two general classes. One is composed of "large type" devices (rated output in excess of 120 decibels at 100 feet) with comparatively long range. Included in this group are various types of electronic loud speakers, together with electric, steam and gasoline driven sirens. Each particular type has both advantages and disadvantages briefly discussed below.

9. Electronic loud speakers are comparatively easily installed, they may readily be operated by remote control and can be used for voice transmission. On the other hand, voice use of the speakers is frequently unsatisfactory due to reflections from buildings and interference between two or more speakers. Electric driven sirens, like the speakers, are quite easy to "hook up" and operate from a central point. But also like speakers, they are dependent on a frequently vulnerable source of power supply. In addition, they are subject to bad weather "freeze ups" and must, as a rule, be sheltered in one way or another.



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Gasoline driven sirens have their own power supply, but they are often "hard to start" in cold weather and are comparatively difficult to control from distant points. Large steam sirens require comparatively high pressures (100-150 pounds per square inch through a $2\frac{1}{2}$ inch supply line) and such pressures frequently are not available on a 24-hour basis. At the same time, freezing is no problem with them if properly drained, because they can be kept heated by "bleeding" a small amount of steam continually through them.

10. The "small" warning devices include air horns, $\frac{1}{2}$ -, 2 -, 3 -, and 5 - horsepower electric driven sirens and similar equipment. Each of these types also have their good and bad points. Wherever small electric driven sirens are to be installed, it is strongly recommended that they be equipped with standard "continuous duty" motors. Some of those with special "built-in" motors will not stand up well when used for the sounding of the long, three-minute alerts.

11. Purely as a matter of information, there is provided below a list of known manufacturers of warning devices. Their listing herein in no way constitutes endorsement of their products, neither does the State Council of Civil Defense recommend one over another. The selection of warning devices is a local problem which must be determined by study of local requirements.

Manufacturer

Product

Pennsylvania Sources

Keystone Signalphone Co.
53 Marion Street
Pittsburgh, Pennsylvania

Air Horns

Westinghouse Air Brake Co.
Wilmerding, Pennsylvania

Air Horns and
Air Whistles

Out-of-State Sources

American Amplifier & Television Co.
1111 19th Street, N.W.
Washington, D. C.

Electronic Warning
Devices & Systems

American Communications Incorporated
955 Howard Street
San Francisco, California

Electronic Warning
Devices & Systems

B & M Siren Manufacturing Co.
761 East Pico Boulevard
Los Angeles, California

Electric Motor
Driven Sirens



G. B. Bashaw Co. 1969 S. E. 25th Street Portland 15, Oregon	Air Horns
Benjamin Electric Manufacturing Co. Des Plaines, Illinois	Electric Motor Driven Sirens
*Biersach & Niedermeyer Co. 1937 N. Hubbard Street Milwaukee 12, Wisconsin	Gasoline Engine Driven Sirens
*Chrysler Marine & Industrial Co. 12200 East Jefferson Street Detroit, Michigan	Gasoline Engine Driven Sirens
Clayton Foundry & Siren Co. Daytona Beach, Florida	Electric Motor Driven Sirens
Crouse-Hinds Co. 1347 Wolf Street Syracuse, New York	Electric Motor Driven Sirens
*Federal Enterprises, Inc. 8700 South State Street Chicago, Illinois	Air Horns and Electric Motor Driven Sirens
*Foster Engineering Co. 833 Lehigh Avenue Union, New Jersey	Steam Sirens
General Electric Co. Electronics Park Syracuse, New York	Electronic Warning Devices & Systems
Grover Products Co. 1221 South Hope Street Los Angeles 15, California	Air Horns
*H. O. R., Co., Inc 40 Broadway Staten Island 10, New York	Electric Motor Driven Sirens
Hedburg Super Sirens San Jose, California	Electric Motor Driven Sirens
*Radio Corporation of America Engineering Products Department RCA Victor Division Camden, New Jersey	Electronic Warning Devices & Systems
The Sireno Co. 214 William Street New York, New York	Electric Motor Driven Sirens
Sparton Automotive, Inc. Jackson, Michigan	Electric Motor Driven Sirens and Air Horns
Sperti Faraday, Inc. 1800 Church Street Adrian, Michigan	Electric Motor Driven Sirens
*Stark Manufacturing Co. Baltimore, Maryland	Electric Motor Driven Sirens

Sterling Siren Fire Alarm Co.
54 Allen Street
Rochester, New York

Electric Motor
Driven Sirens

Robert J. Zievers, Inc.
LaVerne, California

Electric Motor
Driven Sirens

Motorela, Inc.
2309 Calvert Street, N. W.
Washington, D. C.

Control Equipment

Those firms marked with an asterisk (*) are known manufacturers of "large type" devices.

12. In making preliminary estimates of the cost of attack warning systems, it should be clearly recognized that the cost of installing (including arrangements for remote control) a device frequently equals the cost of the equipment itself and both must be added together.

13. In designing an attack warning system, the common-sense aim should be "to obtain maximum effective coverage at minimum expense". In large towns and cities, this goal frequently can be realized by installation of two generalized types of installation, namely, a "basic system" composed of "large" devices (those rated at 120 or more decibels) and a "back-up system" (to cover both "outlying areas" and "dead spots" left by the basic system) consisting of smaller devices. For large areas, dual systems of this kind are, as a rule, "better buys" than single systems composed of a large number of small devices. This is due both to the total cost of many small units and to the expense involved in providing for their installation and simultaneous operation.

14. The design and installation of effective attack warning systems is basically an engineering project requiring detailed technical knowledge. Where municipal engineers are not available for the work, local industries and utility companies often will be glad to furnish civil defense officials with engineering advice and assistance.

15. For detailed information concerning the design and installation of attack warning systems, the State Council of Civil Defense suggests reference to the Federal Civil Defense Administration's booklet "Outdoor Warning Device

Systems". A limited number of these publications have been forwarded to all County Civil Defense Directors. Additional copies may be obtained by writing Col. H. R. Battley, Regional Director, Federal Civil Defense Administration, Southern States Building, 7th and Main Streets, Richmond 19, Virginia, or by sending 15 cents to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

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